

We claim:

1. A catalyst comprising from 0.1 to 20% by weight of rhenium and from 0.05 to 10% by weight of platinum, based on the total mass of the catalyst, on a support, obtainable by a process in which
 - 5 a) the optionally pretreated support is treated with a solution of a rhenium compound,
 - b) dried and heat-treated in a reductive atmosphere at from 80 to 600°C,
 - 10 c) impregnated with a solution of a platinum compound and dried again.
2. A catalyst as claimed in claim 1, wherein the support is a metal oxide, optionally pretreated activated carbon or a graphitic carbon support, a nitride, silicide, carbide or boride.
- 15 3. A catalyst as claimed in claim 2, wherein the support is selected from titanium dioxide, zirconium dioxide, hafnium dioxide, optionally pretreated activated carbon or a graphitic carbon support.
- 20 4. A catalyst as claimed in any of claims 1 to 3, wherein the reductive atmosphere comprises at least a portion of gaseous ammonia, hydrazine, C₂- to C₆-olefin, carbon monoxide and/or hydrogen.
- 25 5. A catalyst as claimed in any of claims 1 to 4, wherein, after step b), the catalyst blank obtained is passivated with an oxygenous gas.
6. A catalyst as claimed in any of claims 1 to 5, which is activated by using a reducing gas atmosphere or a liquid reducing agent.
- 30 7. A process for preparing alcohols by catalytically hydrogenating carbonyl compounds to alcohols, which comprises using a catalyst as claimed in any of claims 1 to 6.
8. A process as claimed in claim 7, wherein the carbonyl compound is selected from aldehydes, carboxylic acids or esters, anhydrides and/or lactones.
- 35

9. A process as claimed in claim 8, wherein the carbonyl compound is selected from maleic acid, glutaric acid, adipic acid, fumaric acid, succinic acid or esters or anhydrides thereof, or gamma-butyrolactone, and is hydrogenated to 1,4-butanediol.
- 5 10. A process as claimed in claim 9, wherein the carbonyl compound is selected from adipic acid, 6-hydroxycaproic acid or esters thereof, or caprolactone, and is hydrogenated to 1,6-hexanediol.
- 10 11. A process as claimed in any of claims 7 to 10, wherein the hydrogenation is carried out in the liquid phase over solid catalysts at a pressure in the range from 20 to 230 bar and a temperature in the range from 80 to 210°C.
- 15 12. A process as claimed in any of claims 7 to 11, wherein the hydrogenation reactor charged with the catalyst is started up under hydrogenation conditions using water or a dilute aqueous solution of the carbonyl compound.

Improved catalyst and preparation of alcohols by hydrogenation over this catalyst

Abstract

5 The present invention provides a catalyst comprising from 0.1 to 20% by weight of rhenium and from 0.05 to 10% by weight of platinum, based on the total mass of the catalyst, on a support, obtainable by a process in which

10 a) the optionally pretreated support is treated with a solution of a rhenium compound,

b) dried and heat-treated in a reductive atmosphere at from 80 to 600°C,

c) impregnated with a solution of a platinum compound and dried again,

15 and also a process for preparing alcohols by catalytically hydrogenating carbonyl compounds over this catalyst.